SP 4-3

PREVENTION AND INFECTION CONTROL FOR NOROVIRAL INFECTION

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Norovirus, a genus within the *Caliciviridae* family, is the leading cause of sporadic and epidemic acute gastroenteritis worldwide. Our understanding of norovirus epidemiology has significantly progressed in recent years due to the development of sensitive molecular diagnostic techniques. We now understand that human noroviruses are extremely diverse, with three genogroups (GI, GII, and GIV), at least 25 genotypes, and numerous subgenotypes or variants identified in the past two decades. In recent years, only a few strains, primarily those of genogroup II, genotype 4 (GII.4) have been responsible for the majority of outbreaks. Norovirus genotype GII.4 is responsible for the majority of outbreaks, but new variants are continuously emerging. Noroviruses are found in the feces and vomit of infected people. This virus is very contagious and can spread rapidly throughout healthcare facilities. People can become infected with the virus in several ways: 1) Having direct contact with another person who is infected; 2) Eating food or drinking liquids or water that are contaminated with norovirus; 3) Touching surfaces or objects contaminated with norovirus, and then touching your mouth or other food items. In a healthcare facility, patients with suspected norovirus may be placed in private rooms or share rooms with other patients with the same infection. Additional prevention measures in healthcare facilities can decrease the chance of coming in contact with noroviruses: 1) Follow hand-hygiene guidelines, and carefully washing of hands with soap and water after contact with patients with norovirus infection; 2) Use gowns and gloves when in contact with, or caring for patients who are symptomatic with norovirus; 3) Routinely clean and disinfect high touch patient surfaces and equipment with an authority-approved product with a label claim for norovirus; 4) Remove and wash contaminated clothing or linens; and 5) Healthcare workers who have symptoms consistent with norovirus should be excluded from work. A norovirus vaccine is being developed for active prevention of the infection in children as well as in adults.

SYMPOSIUM 5 (SP 5)

CURRENT MANAGEMENT OF FUNGAL AND VIRAL INFECTIONS

SP 5-1

INFECTIONS CAUSED BY RARE FUNGI

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The predominant nosocomial fungal pathogens are Candida spp., and Aspergillus spp. but rare and emerging fungi are increasingly being reported, also among Candida and Aspergillus genera and species complexes. These rare pathogens are mostly seen in severely immunocompromised hosts. The presentation will focus on Cryptococcus gattii, newly recognized yeast spp, black yeasts, Exserohilum, and Penicillium spp. Rapid taxonomic changes are a hallmark of these fungi. Especially for epidemiological purposes, including outbreak investigation, molecular identification is indispensible. Rare fungal pathogens are often resistant to one or more antifungal drugs.

SP 5-2

CURRENT MANAGEMENT OF CHRONIC HEPATITIS C

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Chronic hepatitis C is a global disease. An estimated of 150 millions people worldwide are chronically infected and around 350,000 to 500,000 people die each year from hepatitis C related liver diseases. Around 15% to 30% of patients with chronic hepatitis C will develop cirrhosis in 20 years. The risk of development of hepatocellular carcinoma would be about 1—4% per year once the patient has progressed to cirrhosis. The prevalence of chronic hepatitis C is the highest in Asia Pacific region. It varies from 1% in Southeast Asia to 5.4% in Central Asia. Chronic hepatitis C also accounts for a significant proportion of patients requiring liver transplantation as a result of decompensation or development of hepatocellular carcinoma. There are altogether 6 genotypes of hepatitis C worldwide and genotype 1 is most common of all infections, followed by genotypes 2 & 3. Genotype 6a is particularly prevalent in Southeast Asia, accounting for over 50% in countries like Cambodia or Vietnam. This genotype is also exclusively common in intravenous drug abusers. The management of chronic hepatitis C has evolved extensively over the years. Combination therapy with pegylated Interferon and ribavirin has been the standard of care for more than 10 years. An over 80% sustain virological response rate (SVR) can be achieved for patients infected with genotype 2 and 3 after half year treatment of this regime. However, the SVR for genotype 1 after this combo can only fall around 50% even with 48 weeks of therapy. Moreover, significant side effects from the combination including flu-like symptoms, fever, myalgia, malaise, cough, allergic reactions, cytopenia, thyroid diseases, alopecia or insomnia can be anticipated. In response to these caveats, researchers has devoted to develop new antivirals targeting directly on the virus itself, so called the Direct-acting Antivirals (DAAs), with an aim of increasing efficacy and enhancing tolerability & safety. The first generation DAAs include boceprevir and telaprevir. When these medications are used in combination with the pegylated interferon and ribavirin, a 10—20% increase in SVR can be achieved in genotype 1-treatment naïve patients. SVR in difficult-to-treat patients such as previous non-responders to dual therapy is still disappointing. Moreover, the added side effects including aggravation of anemia, dysguesia and enhanced allergic reaction can be difficult to overcome. Interferon-free regime is then a very attractive strategy of therapy. Sofosbuvir is the first compound ever produced to be the interferon-free treatment. When it is combined with other antivirals for different genotypes, an extraordinary SVR of 80% to even over 90% can be attained. The rapid development of hepatitis C medications is unprecedented. There are at least 10 novel medications on the pipeline to enter this treatment arena. The future eradication of hepatitis C virus may be anticipated.

SP 5-3

CURRENT MANAGEMENT OF HIV INFECTION

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No abstract.

SYMPOSIUM 6 (SP 6)
INFECTION PREVENTION AND CONTROL IN HEALTHCARE SETTINGS

SP 6-1

NATIONAL IMPLEMENTATION OF ANTIMICROBIAL STEWARDSHIP PROGRAMS

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A snap shot survey conducted in 2008 of AMS programs in Australian hospitals reported only 11% of hospitals had a fully integrated AMS program in place that was overseen by a central body or committee; only 67% used guidelines to guide antimicrobial prescribing, and only 47% did regular audits of antimicrobial prescribing (Chen 2011).
The National Safety and Quality Health Service (NSQHS) Standards were designed to protect the public from harm and to improve the quality of care to patients. In implementing the NSQHS Standards, health services have put in place safety and quality systems to ensure standards of care are met and quality improvement mechanisms exist. This includes the implementation of Antimicrobial Stewardship (AMS) programs in every hospital and day procedure service in Australia.
Since the implementation of Standard 3, 100% of health services accredited to date have a fully developed AMS program, all prescribers have access to antibiotic guidelines, and, all health services monitor their use of antibiotics. While some countries have developed guidelines and strategies for AMS program, many are yet to include specific requirements for the management of antibiotic resistance and usage Australia leads the world in mandated requirements for infection prevention and control and AMS in health services

safety and quality standards. The Australian Commission on Safety and Quality in Health Care has developed resources that assist health services implement these important initiatives.
The introduction of these requirements have been 'transformative' in that it provides the necessary stimulus for hospital executives to re-prioritise and commit resources to the prevention of healthcare associated infections as well as accept responsibility for governance.

Chen AWJ, Khumra S, Eaton V, Kong D Snapshot of antimicrobial stewardship in Australian hospitals Journal of Pharmacy Practice and Research Volume 41, No. 1, 2011

SP 6-2

SURVEILLANCE SYSTEM OF ANTIMICROBIAL RESISTANCE AND HEALTHCARE-ASSOCIATED INFECTIONS IN JAPAN

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Antimicrobial resistance (AMR) is of global concern, and strengthening surveillance is critical. Japan has two major surveillance for AMR. The first one is National Epidemiological Surveillance of Infectious Disease (NESID), which is a national comprehensive surveillance system under infection control act. About 110 infectious diseases including seven AMR bacterial infections are designated as reportable disease. The second one is Japan Nosocomial Infections Surveillance (JANIS) , which has been established in 2000 as a voluntary-based national surveillance system targeting healthcare-associated infections and antimicrobial resistant bacteria. It is organized by Ministry of Health Labour and Welfare, and JANIS management office located at National Institute of Infectious Diseases. More than 1600 hospitals are participating to JANIS on voluntary basis as of January 1st, 2015.
JANIS consist of five divisions and Clinical Laboratory division provides information on prevalence of AMR bacteria among clinical isolates. JANIS collects data from hospital laboratories that have an automated system for bacterial identification and drug susceptibility testing, and also data from commercial laboratories to which participating hospitals are contracted. Following conversion of those laboratory data into JANIS data format, the data is collected to a centralized JANIS database server for analysis. Collected data would be processed by JANIS tabulation program, which was developed by JANIS research team, to detect data error, remove duplicate samples and differentiate drug susceptibility pattern by an original algorithm. JANIS has been working for years to standardize JANIS data format and establish tabulation program. The outputs from this JANIS system include aggregate AMR data by hospital to allow for inter-hospital comparison as well as national data for AMR trends. From 2014, JANIS starts to recruit hospitals outside Japan to participate this surveillance system.
In the presentation, a summary of JANIS annual report 2013 which is based on data of 4.6 million samples and 3.6 million isolates submitted from 745 hospitals across Japan would be provided.

SP 6-3

IMPLEMENTATION OF BUNDLE CARE TO DECREASE HEALTHCARE ASSOCIATED INFECTIONS IN TAIWAN

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Health care-associated infections (HAI) are associated with significant morbidity at hospitals. We implemented active surveillance, hand hygiene promotion, isolation cohort of resistant microorganism and bundle care since 2010. The bundle care program includes prevention care of center-line associated bloodstream infection, urinary catheter associated urinary tract infection, ventilator-associated pneumonia, and surgical wound infection. The infection density decreased from 5.1 per 1000 patient-days in 2011, 4.9 in 2012, 4.2 in 2013, and 3.7 in 2014, respectively. Infection density of methicillin-resistant Staphylococcus aureus had decreased from 0.18 per 1000 patient-days in 2011 to 0.11 in 2014. Infection density of carbapenem-resistant Acinetobacter baumannii had had decreased from 0.15 per 1000 patient-days (‰) in 2011, 0.18 in 2012, 0.09 in 2013 and 0.07 in 2014 ($P<0.001$). A infection control environment reduce the morbidity, mortality and medical costs. Implementation of bundle care has shown successful to decrease HAI in Taiwan.

SYMPOSIUM 7 (SP 7)

CLOSTRIDIUM DIFFICILE INFECTIONS (CDI)

SP 7-1

CLOSTRIDIUM DIFFICILE INFECTION IN WESTERN COUNTRIES: UNDER DIAGNOSES, EPIDEMIOLOGY & EVOLVING THERAPIES

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C difficile associated infection (CDI) effects approximately 500-—700,000 Americans annually and is associated with significant and recently increasing morbidity and mortality with 7,285 deaths reported in 2009. CDI also has a substantial economic impact. The cost of treating one CDI patient in hospital is approximately $8,000. Annual expenditures in the USA to manage CDI is $3.2 billion/year, not including measures taken to prevent the spread of *C. difficile* spores. Because of lack of suspicion and/or laboratory methodological issues it seems likely that CDI is underdiagnosed worldwide. It is estimated that 40,000 cases per year are missed in European countries. Of 336,600 hospitalizations in the US, 1% of all stays develop CDI. Rates vary for HO-HCFA CDI from rates 2.8-—9.3 per 10,000 patient days, to 1.3-—2.7 CO-HCFA and 20-—30 per 100,000 population for CA-CDI. In the USA stool culture for *C. difficile* is not performed and therefore epidemiological surveys rely on data from a few centers. Between 2011-2013, 29 ribotypes types were identified with 027 most frequent and accounting for 28.1% although rates varied by geographic region. Ina survey of 20 European countries, 027 was the most prevalent ribotype (~18%) but varied by country for 43% in Germany to 12% in Romania.
The therapy foe CDI has been stagnant for approximately 30 years with the only alternatives being metronidazole or oral vancomycin. Because relapse rates range between 20—30 %, especially in the elderly and medically vulnerable, there has been a search for both new and more effective therapeutic agents as well as novel preventative strategies. A recent study (CID 2014) notes the inferiority of both metronidazole and vancomycin compared to fidaxomicin in mild, moderate and severe CDI with statistically superior sustained cure especially in various patient groups at greater risk of relapse such as patients requiring concomitant antibiotics and those with renal failure. Several new agents surotomycin, (CB-183315), SMT19969, cadazolid and others are currently in development for CDI therapy. Other promising alternative therapeutic approaches include monoclonal antibodies, fecal biotherapy, oral spore ingestion, vaccination, and the use of probiotics for primary prevention.

SP 7-2

HYPERVIRULENT *CLOSTRIDIUM DIFFICILE* IN ASIA

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While *Clostridium difficile* infection (CDI) has come to prominence as major epidemics have occurred in North America and Europe over the last 15 years, awareness and surveillance of CDI in Asia have remained poor. Limited studies performed throughout Asia indicate that CDI is also a significant nosocomial pathogen in this region, but the true prevalence of CDI remains unknown. A lack of regulated antibiotic use in many Asian countries suggests that the prevalence of CDI may be comparatively high. Molecular studies indicate that ribotypes 027 and 078, which have caused significant outbreaks in other regions of the world, are rare in human CDI in Asia, however, there have been no published investigations of production or companion animals in the region. Variant toxin A-negative/toxin B-positive strains of ribotype 017 caused apparent epidemics across several Asian countries in the mid-2000s but now appear to be waning. Ribotype smz/018 has caused widespread disease across Japan over the last decade and more recently emerged in Korea. Both ribotype 17 and 18 have caused major outbreaks outside Asia highlighting the potential for transfer to different countries. Better surveillance for CDI in Asia is essential, and urgently required.